

# EP 410 Report

I. M. A. Student

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This first assignment is designed to acquaint you with the  $\text{\LaTeX}$  typesetting environment, which you will use for all reports in this class. Use this document as a template. This first essay should be written as one unit, with paragraphs, of course, but no sections. Future reports will be longer and more complex and should use the `section`, `subsection`, and `subsubsection` environments, as needed. Section 1 below describes the requirements for this first essay, while the rest of the document provides general guidelines for all reports in this class, as well as standard practice in the space physics publishing community. You don't need to have  $\text{\LaTeX}$  compiled on your own computer, but you can use the site [www.sharelatex.com](http://www.sharelatex.com) online.

## 1 Essay Requirements

Read the following Scientific American articles available on the course web page.

- Burch, *The Fury of Space Storms*, Scientific American, April 2001.
- Holman, *The Mysterious Origins of Solar Flares*, Scientific American, April 2006.
- Odenwald & Green, *Bracing For a Solar Superstorm*, Scientific American, August 2008.

Write a 1-2 page essay (at least one word on the second page, but no words on the third page) describing the effects of magnetic storms on Earth systems and humans. You might have to do some additional research, either online or in the ERAU library. Make sure you cite any references other than the three articles above. You don't need to cite them, but just refer to them by the author names: Burch, Holman, or Odenwald and Green.

Turn in the resulting pdf file *and* the source tex file via email, and name the files `ep410_Essay_SpaceStorms_YourLastName.pdf/tex`, just like these template files. Simply take this file and replace everything between the `\begin{document}` and `\end{document}` statements, along with the title and author. Do not change the margins, font size, or the line spacing.

## 2 Mathematics

Important equations should be numbered and on their own line

$$\vec{F} = \frac{d\vec{p}}{dt}, \quad (1)$$

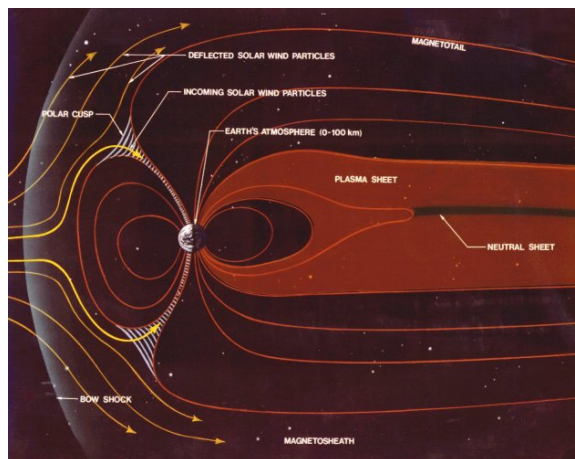


Figure 1: Earth's Magnetosphere.

and should be a grammatically correct part of the sentence. Less important equations, such as  $\omega = 2\pi f$ , can be typeset “in-line,” but also should be part of the sentence. Equations can be referred to, such as Eq. (1), using the `label` and `ref` commands.

### 3 Figures

If you need to show a picture or graph, use the `includegraphics` environment. If you want the figure to float to the top of the page, use the `figure` environment, like Fig. 1 above. Note that the `label` and `ref` commands work for figures also.

### 4 Writing Tips

Your reports should be typeset using the `article` document class, as this template, with 12-point font, single spacing, and 1-inch margins. This is a fairly standard format, and one that I require.

All works referenced must be listed at the end in a “Bibliography” or “Reference” section. For online sources, give the name of the page, the author (if you can find it), the URL, and the date accessed. For books, give the title, author, publisher, and date. And for articles (magazine or journal) give author, title, publication, date, and pages.

Credit for general ideas in your report can be give by simply listing the original work in your bibliography. Credit for specific facts, or revolutionary ideas should footnotes individually, noting which work in the bibliography is responsible for the fact or idea. Similarly, quoted passages must be referenced individually, noting which page of the source that the quote is from.

If you quote a long passage (a paragraph, say), set it apart from the double-spaced text of your report and use single spaces:

When in the Course of human events it becomes necessary for one people to

dissolve the political bands which have connected them with another and to assume among the powers of the earth, the separate and equal station to which the Laws of Nature and of Nature's God entitle them, a decent respect to the opinions of mankind requires that they should declare the causes which impel them to the separation.<sup>1</sup>

Also, try to make most of the words your own. Stringing together lots of quotes does not look as if you put much thought into your writing.

Finally, try to be specific. If you say “technologies will have to be perfected,” let the reader know which ones and why they are not perfect now. If you say “There will be another venture to the moon pretty soon,” state which country and when. If you talk about something that we haven't discussed in class, you should define it. Pretend that your reader is a fellow classmate, not me. The reader therefore has the same knowledge as you, but anything new you will have to explain.

You should purchase a copy of Strunk and White's *The Elements of Style*, as this slim volume tells you most of what you need to know about the mechanics of good writing.

## References

- [1] Alfvén, H. (1976), On frozen-in field lines and field-line reconnection, *J. Geophys. Res.*, *81*, 4019-4021.
- [2] Odenwald, S. F., and J. L. Green (2008), Bracing for a solar superstorm, *Sci. Am.*, *299*(2), August 2008, 80-87.

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<sup>1</sup>Thomas Jefferson, *Declaration of Independence*, Philadelphia, 1776.